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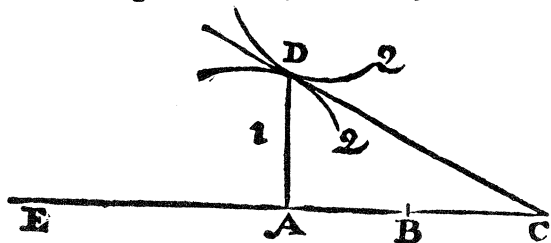
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4. An Extract of a Letter from the Excellent *Renatus Franciscus Simons*, Canon of *Liege* and Counsellor to his Electoral Highness of *Collen*, written to the Publisher in order to be communicated to the *R. Society*; concerning his short and easie Method of drawing *Tangents* to all *Geometrical Curves* without any labour of Calculation: Here inserted in the same language, in which it was written.

— **M**ethodum meam ducendarum ad Curvas quaslibet Geometricas Tangentium mitto ad Te, & Virorum Doctissimorum *R. Societatis* censuræ submitto. Brevis mihi visa est ac facilis, quippe quam puer ætatis ætatis doceri possit, & quæ absque ullo calculi labore ad omnes omnino lineas extendatur: Maloramen aliis talem videri quam mihi, cum in rebus nostris cecidere plerumque soleamus.

Fig 1. Data sit igitur qualibet Curva *DE* cujus puncta omnia referantur ad Rectam quamlibet datam *EAB* per Rectam *DA*; siue *EAB* sit diameter seu alia qualibet, siue etiam alia simul linea data sint, quæ, vel quarum potestates Equationem ingrediuntur; parum id refert.

In Equatione Analytica, facilioris explicationis causâ, *DA* perpetuò dicatur v , *BA*, y . *EB* verò & alie quantitates data, Consonantibus exprimantur.



Tum supponatur ducta *DC*, tangens curvam in *D*, & occurrens *EB*, producta, si opus sit, in puncto *C*; & *CA* perpetuò quoque dicatur a . Ad inveniendam *AC* vel a , hæc erit Regula Generalis;

1. Rejctis ab equatione partibus, in quibus y vel v non invenitur; statuantur ab uno latere omnes in quibus est y , & ab altero illa in quibus habetur v , cum suis signis $+$ vel $-$. Hoc, dextrum, illud, sinistrum latius, facilitatis causâ, vocabimus.

2. In latere dextro, præfigatur singulis partibus exponens potestatis quam in illis obtinet v ; seu, quod idem est, in illum ducantur partes.

3. Fiat idem in latere sinistro, præponendo scil. unicuique illius parti Exponentem potestatis quam in illa habet y . Sed & hoc amplius: Unum y in singulis partibus vertatur in a .

Ajo, Equationem sic reformatam modum ostendere ducenda Tangentis ad punctum *D* datum. Cum enim eo dato, pariter data sint y & v , & ceteræ quantitates, quæ Consonantibus exprimuntur; a non poteris ignorari.

Si quid forte sit obscuritatis in Regula, aliquot exemplis illustrabitur: Data sit hac Aequatio $by - yy = vv$; in qua EB sit b , BA , y , DA , v , & queratur a sive AC talis, ut juncta DC tangat Curvam DQ in D . Ex regula, nihil rejiciendum est ab hac Aequatione, cum in singulis ejus partibus reperiatur y vel v . Ita quoque disposita est, ut ab uno latere sint omnes illius partes in quibus y ; ab altero, omnes in quibus v . Singulis itaque tantum praefigendus est Exponens potestatis, quam in illis habet y vel v ; & in latere sinistro unum y vertendum in a , ut fiat $ba - 2ya = 2vv$. Ajo nunc, hanc Aequationem ostendere modum ducende Tangentis ad punctum D , sive $a = \frac{2vv}{b-2y} = AC$.

Sic si data fuerit aequatio $qq + by - yy = vv$; eadem planè fieret etiam priori Aequatio pro Tangente, abjecto scilicet qq , ut Regula praescribit.

Sic ex $2byy - y^3 = v^3$ fit $4bya - 3yya = 3v^3$ sive $a = \frac{3v^3}{4by - 3yy}$: Ex $bby + zyy + y^3 = qvv$, fit $bbat + 2zya + 3yya = 2qvv$ & $a = \frac{2qvv}{bb + 2z + 3y}$: Ex $b^4 + by^3 - y^4 = qqvv + zv^3$, fit $3bya - 4y^3a = 2qqvv + 3zv^3$ & $a = \frac{2qqvv + 3zv^3}{3by - 4y^3}$.

Verum in similibus aequationibus nullam arbitror accidere posse difficultatem. Aliqua fortasse in illis occurret, quarum partes quadam constant ex productis y in v : Ut yv , yyv , y^3vv , &c. Sed hac quoque levis est, ut exemplis patebit. Detur enim $y^3 = bvv - yvv$. Nihil ab illa rejiciendum erit, cum in singulis ejus partibus reperiatur y vel v .

Sed ut ex Regula praescripto disponatur, bis sumendum erit yvv , & statuendum tam in latere dextro, in quo sunt partes quae habent v , quam in sinistro, cujus partes habent y ; quandoquidem yvv , tam y quam v contineat. Faciendum igitur erit

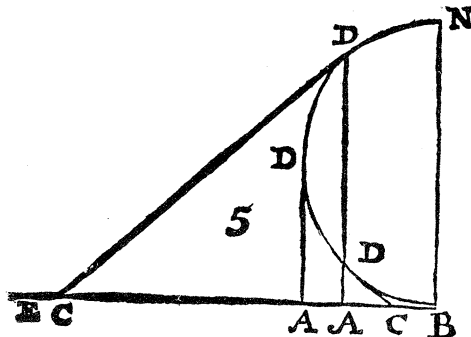
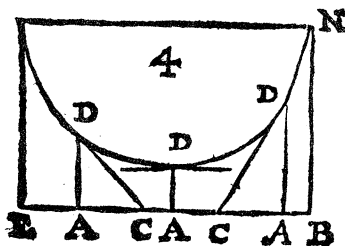
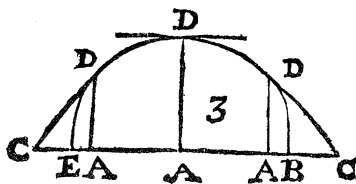
$$y^3 + yvv = bvv - yvv.$$

Tum mutata, ut prius, hac aequatione in aliam $3yya + vva = 2bvv - 2yvv$, dabitur $a = \frac{2bvv - 2yvv}{3y + v}$.

Ita enim intelligenda est Regula, ut nempe in latere non consideretur potestas ipsius v , ideoque ipsi yvv Exponens vv praefigi non debeat, sed tantum ipsius y : Sicut contra ab alio latere, in yvv considerari non debet potestas ipsius y , sed tantum, eique suus Exponens praeponi. Sic si foret $y^3 + by^4 = 2qqv^3 - yyv^3$, faciendum esset $y^3 + by^4 + v^3yy = 2qqv^3 - yyv^3$; & haberetur aequatio pro Tangente $5y^4a + 4by^3a + 2v^3ya = 6qqv^3 - 3yyv^3$ & $a = \frac{6qqv^3 - 3yyv^3}{5y^4 + 4by + 2v^3}$.

Atque his Exemplis arbitror, me omnem, quae dari posset, Casuum varietatem complexum esse. Ceterum non erit fortasse inutile, si ea quae generatim exposui, ad lineam aliquam singularem applicem. Data sit igitur Curva BD , cujus ea sit proprietas, ut sumpto in illa quolibet puncto D , si jungatur BD , & erigatur ad illam normalis DE , occurrens rectae BE in E , recta DE sit semper aequalis datae rectae BF . Ut habeatur

Vid. Fig. 3. Sit enim Semi-circulus, cujus diameter EB , & in eo pun-
ctum D datum, ex quo cadat normalis $DA = v$. Sit $BA = y$, $BE = b$;



erit aequatio $b y - y y = v v$,
& ductâ Tangente DC , erit
 AC sive $a = \frac{b v - v v}{2 y}$. Nunc si
 b major sit $2 y$, ducenda est
tangens versus B ; si aequalis,
fit parallela EB ; si autem
minor, ducenda est versus E ;
ut n. 1. 2. & 4. diximus.

Vid. Fig. 4. Datur rursus
alius Semi-circulus inversus,
cujus puncta referri intelli-
gantur ad Rectam diametro
parallelam, & eidem aqua-
lem, ut in schemate. Denomi-
natis, ut prius, partibus, &
 $NB = d$, fit aequatio $b y$
 $- y y = d d + v v - 2 d v$.
Igitur AC sive $a =$
 $\frac{2 v v - 2 d v}{b - 2 y}$. Cum verò in ex-
emplo supposuerimus, v sem-
per esse minorem d ; si b sit
major $2 y$, ducenda erit Tan-
gens versus E ; si aequalis,
erit parallela; si minor, mu-
tatis omnibus signis, ducenda
erit versus B ; ut n. 4. 5. & 3.

Nulla autem ducenda esset Tangens, seu Tangens foret ipsa EB , si sup-
posuissimus NB aequalem semi-diametro, sive $2 d = b$; ut n. 5.

V. Fig. 5. Sit tandem alius Semi-circulus, cujus diameter NB nor-
malis sit ad rectam BE , ad quam ejus puncta referri intelligantur. NB
dicatur b , & alia partes denominentur ut supra; fiet Aequatio $y y =$
 $b v - v v$; & $a = \frac{b v - 2 v v}{2 y}$. Jam si b sit major $2 v$, Tangens ducenda
erit versus B ; si minor, versus E ; si autem aequalis, ipsa DA erit
Tangens; ut n. 1. 4. & 5^o.

Et hac est, ni fallor, Casuum omnium varietas, qua ex Aequationum
consideratione deprehendi potest.

Quomodo verò ex doctrina Tangentium constituentur Aequationum
Limites, non est ut pluribus exponam, cum evidens esse existimem, maxi-
mam vel minimam applicatarum vel utramque simul determinari à Tan-
gente parallela: de quo & aliàs ad Te scripsi, & aliquid etiam attingi
MIL-

Miscelaneorum capiti &, quâ ratione flexus contrarii curvarum ex Tangentibus inveniuntur, ostendi. Eadem ratione reperitur quoque $\mu\nu\nu\alpha\chi\delta\epsilon\lambda\omicron\pi\epsilon\varsigma$, ut vocat Pappus, & multa alia; quæ si explicare vellem, liber mihi scribendus esset. Nam & in Physico-mathematicis Usus quoque hujus Regula opinione major est: Licet enim falsum sit Axioma, Naturam agere per lineam brevissimam; verissimum tamen est, Viam sequi determinatam, &, ubi nullam invenit, agere doctus. De quo aliâs plura, si tanti Tibi visum fuerit: jam enim epistola modum excessi; ac vereor, ne, dum obscuritatem vitare satago, in prolixitatem inciderim. Addo tantum, me Regula mea Demonstrationem * habere facilem, & quæ solis constet Lemmatibus; quod mirum Tibi fortasse videbitur. Vale. Dabam Leodii d. 17. Januâr. C1D1CCLXXIII.

* Non dubitamus, quin rogatu nostro Illustris & Candidus hic Author Demonstrationem hic indigitatam Nobis etiam brevi sit communicaturus.

An Account of some Books.

- I. *A Discourse concerning the Origin and Properties of WIND, &c. By R. Bohun Fellow of N. Coll. in Oxon. Printed at Oxford 1671. in 8^o.*

THE Industrious Author of this Discourse, having consider'd with himself, how little Progreſs had been made, as in general, in the *History of Nature*, so, in particular, concerning the *History of Winds*, till our Voyages to the *East* and *West-Indies*, and the great advancement of Navigation in this and the precedent Age, furnish't us with so many new Discoveries and Improvements in all Natural knowledge, especially in the Motions of the *Winds* and *Seas*, that we must acknowledge the Insufficiency of the Theories received from the Schools of the Antients; having, I say, considered this, and withall met with frequent opportunities of conversing with the most Experienced of our Sea-Captains, giving him good information of the Course of the *Trade-winds*, the *Indian Monsoons*, the several sorts of *Brises* in the African and American Climates, *Hurricanes*, and other tempestuous Winds: Endeavoureth in this Discourse to give a fuller Account of this Subject than former Writers have done, proceeding therein, as he assureth the Reader, with great caution, in seldom making use of any Account of Voyagers, but when several Relations did agree in the same Particulars, or when he